

Chemically Speaking

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March 2013

Table of Contents

	Page
USDA Releases 2011 PDP Report.....	1
Monsanto’s Deal for Brazil Soya	2
Promising Pheromone Research.....	3
Pesticide Registrations and Actions	4
Food Related Actions	4
Other Actions	4
Pesticide Potpourri	6

USDA Releases 2011 PDP Report

The U.S. Department of Agriculture’s Agricultural Marketing Service (AMS) released the latest summary of the Pesticide Data Program (PDP) last month. In its 21st annual summary of the program, the AMS stated that for the calendar year 2011 overall pesticide residues found on foods tested were below the maximum legal residue levels set by the U.S. Environmental Protection Agency to protect consumers and workers from exposure to pesticides. In plain terms, the AMS stated in its report: “The data reported by PDP corroborate that residues found in fruit and vegetables are at levels that do not pose risk to consumer.

According to the report, in 2011, 11,894 food samples were tested by PDP; 32 samples (0.27 percent) exceeded the pesticide residue tolerance level set by the EPA and 399 samples (3.4 percent) were found to have residues with no established tolerance level. Of the 32 samples with residue

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levels exceeding established tolerance levels, 25 were imported and 7 were domestic. Of the 399 samples that tested positive for residues with no established tolerance, 280 were imported, 115 were domestic and 4 were of unknown origin.



The PDP sampling and testing program operations are carried out with the support of 13 states: California, Colorado, Florida, Maryland, Michigan, Minnesota, Montana, New York, North Carolina, Ohio, Texas, Washington and Wisconsin. Testing occurs at both state laboratories and at the AMS National Science Laboratory and the USDA Grain Inspection, Packers and Stockyards Administration Laboratory. While it is not designed for enforcement of tolerances, PDP informs the U.S. Food and Drug Administration and the EPA if residues exceeding the tolerance are detected or if no EPA residue tolerance has been established for a residue found.

Fresh and processed fruit and vegetables made up 82.3 percent of total samples tested in 2011. The AMS estimated that 72.7 percent of samples were from U.S. sources, 22.8 percent were imports, 2.8 percent were of mixed origin and 0.7 percent were of unknown origin. Those foods included: baby

food (green beans, pears and sweet potatoes), canned beets, cabbage, cantaloupe, cauliflower, cherry tomatoes, hot peppers, lettuce, mushrooms, onions, orange juice, papayas, plums, snap peas, canned and frozen spinach, sweet bell peppers, tangerines and winter squash. Commodities were also tested. Samples are collected close to the point of consumption and are prepared with a process assigned to emulate consumer practices. Drinking water samples collected at water treatment facilities in three states and from private domestic wells and school or childcare facilities showed low levels of detectable residues. Residues found in drinking water were found in both drinking water and groundwater. None exceeded established maximum Contaminant Levels, Health Advisories, Human Health Benchmarks for Pesticides, or Freshwater Aquatic Organism criteria.

The PDP was initiated in 1991, and plays an important role in the implementation of the 1996 Food Quality Protection Act, which directs the Secretary of Agriculture to collect pesticide residue data on foods that are highly consumed—particularly by infants and children. Those foods include both domestic and imported canned and fresh vegetables, soybeans, eggs, dairy products and water. The U.S. EPA uses PDP data in its verification process to ensure all sources of exposure to pesticides meet the safety standards set forth in the Act. (*Food Safety News*, 3/4/13).

Monsanto's Deal for Brazil Soya

Brazilian farmer groups are opposing a contract that Monsanto is offering farmers to end a dispute over royalty payments on its genetically modified

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soybean seeds. Monsanto is trying to resolve uncertainty over its ability to collect fees on its new Intacta® soybeans, which the company is scheduled to start selling in Brazil during the next growing season.

The contract would waive royalties on Roundup Ready® soybean, which is an older technology, this year and next. In return, farmers would forgo claims in a patent dispute and pay royalties on seeds not yet on the market. The future payments are opposed by the Brazilian National Agriculture Federation, a group of farming associations also known as CNA.



The Parana State Federation of Agriculture, known as FAEP, also said it opposed the agreement. Glauber Silveira, head of Brazil's soybean growers association, said farmers shouldn't sign and should continue pursuing royalty claims in court. "We believe producers are being tricked into signing a contract that will get them trapped to Monsanto for every new technology," Silveira said in a phone interview from Cuiaba, in the state of Mato Grosso.

Growers who sign the contract won't pay a technology fee in the current and subsequent growing seasons on soybean seeds that are

genetically modified to tolerate glyphosate (Roundup®) herbicide. Farmers who sign will waive the right to try recouping royalties previously paid. The agreement would resolve claims by growers that the patent on the original Roundup Ready® soybeans expired in 2010, ending their obligation to pay Monsanto royalties on the seeds. Monsanto argues that Brazilian law extends the patent to late 2014. Monsanto suspended royalty collections in Brazil for two months last year after a court ordered a halt in Mato Grosso state. (*Bloomberg*, 2/20/13).

Promising Pheromone Research

Pheromones are chemical substances secreted or excreted by species that when released into the environment can affect the behavior or physiology of other organisms. These chemicals trigger social responses and are crucial to the mating systems in a wide range of organisms. Researchers from Sweden's Lund University, have found a single gene mutation in the moth genus, *Ostrinia*, has led to the species' ability to produce an entirely new scent.

Male moths have the ability to pick up the scent of a female moth from a distance of several hundred meters. As females produce sexual pheromones, the males are guided to them by the scent compounds. Most of the 180,000 species of moth and butterfly in the world communicate using pheromones, so small differences between the different scents is crucial in order for males to find females of their own species.

The Lund researchers had previously shown that new species of moth can evolve as a result of changes in the female moths' scent. The researchers have now published a study on how these changes

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come about at genetic level by examining one of the genes that controls the production of pheromones. In this case, the mutation and a substituted amino acid in an enzyme result in a new scent substance. The enzyme is active in the process that converts fatty acids into alcohols, which constitute the ingredients in many moth scents. "Our results show that a single mutation, which leads to the substitution of a critical amino acid, is sufficient to create a new pheromone blend", says Professor Christer Löfstedt from the Department of Biology at Lund University.

Unlike conventional pesticides, pheromones, do not damage other animals, nor do they pose health risks to people. Instead, they are responsible for disrupting the reproductive cycle of harmful insects.

They also can be used to lure the pests into traps that can help farmers track insect population growth and reduce the amount of insecticide they use.

"Pheromones are already one of the most frequently used methods for environmentally friendly pest control", says Dr. Löfstedt. "With this knowledge, we hope in the future to be able to tailor the production of pheromones in yeast cells and plants to develop a cheap and environmentally friendly production process." (*Environmental News Network*, 2/22/13).

Pesticide Registrations and Actions

Food Related Actions

- On January 30, the Florida Department of Agriculture and Consumer Services (FDACS) registered the herbicide florasulam (Defendor®) for post-emergent control of

annual and perennial weeds in established turfgrass, including residential lawns, golf courses, sports fields, sod farms, and commercial turfgrass areas. The EPA registration number for the Dow AgroSciences product is 62719-560. (FDACS PREC Agenda, 3/20/13).

- On February 7, the FDACS registered the growing medium inoculated with *Bacillus pumilus* GHA 180 (Pro-Mix BX®) to suppress plant diseases in growing medium in protective growing environments. The EPA registration number for the Premier Horticulture Inc. product is 74267-4. (FDACS PREC Agenda, 3/20/13).
- Based on a request by Nichino America, the EPA has approved tolerances for the herbicide pyraflufen (ET®). Tolerances of importance to the region include corn forage/stover, stone fruit, grape, grass hay and forage, peanut, peanut hay, and potato. (*Federal Register*, 2/27/13).
- The Gowan Company has requested the cancellation of Florida special local needs registration FL96006 for the use of oxydemeton (MSR®) on grapefruit, lemon, and orange as well as the section 3 registration for the product (EPA registration number 10163-220). (*Federal Register*, 2/20/13).

Other Actions

- The Association of Farmworker Opportunity Programs has developed new pesticide safety training materials for use in training

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farmworkers and their families to prevent pesticide take-home exposure. Pesticide take-home exposure occurs when farmworkers take home pesticide residues that may cling to their skin, clothing, hats, boots, tools, lunch coolers, car seats and any other items in the work environment. Their family may then be exposed to these pesticide residues. The new training materials, called *Project LEAF* (Limiting Exposures Around Families), feature the Soto family, a fictional farmworker family desiring to reduce pesticide exposure in the home. Health care providers or those working in pesticide safety education can receive one free copy of Project LEAF materials by calling the National Service Center for Environmental Publications at (800) 490-9198. Project LEAF PDFs of brochures, cards and posters are downloadable at <http://go.usa.gov/28hk> To order more than one copy of these materials, please contact Ms. Ashley Nelsen at nelson.ashley@epa.gov (EPA Release, 3/14/13).

- On February 4, the EPA announced that it has sought Office of Management and Budget review and approval of an information collection request from pesticide users and organizations focusing on “training, education, or influencing pesticide users” under a voluntary “Pesticide Environmental Stewardship Program.” The notice includes estimated burdens and costs to the public of collecting information submitted in a program application with an accompanying five-year strategy. According to EPA, the program calls for pesticide users and training organizations “committed to reducing risks from pests and pesticides by

practicing integrated pest management” to join. Participating entities would be required to develop and provide EPA a stewardship strategy for risk reduction via integrated pest management and education. The Agency’s goal is to encourage integrated strategies for pest management that are cost effective and cause less harm to human health and the environment. Public comments are requested by March 6, 2013. (*Federal Register*, 2/4/13).

- Dow Agrosiences, Makhteshim Agan of North America, and Cheminova Inc. U.S.A. successfully petitioned for overturning the U.S. National Marine Fisheries Service proposals to protect salmon when an appeals court found the Service’s decision “arbitrary and capricious.” (See *Chemically Speaking*, March 2010). The Service’s recommendations to protect salmon from the insecticides chlorpyrifos, diazinon and malathion were based “on a selection of data, tests and standards that did not always appear logical, obvious or even rational,” the appeals panel in Richmond, Virginia ruled, reversing a lower court and sending the proposals back to the Service. The Service also failed to supply an economic reason to ban pesticides from buffer strips of land abutting salmon habitats, according to the ruling by Judge Paul Niemeyer, writing for a three-judge panel. “By not addressing the economic feasibility of its proposed ‘reasonable and prudent’ alternative providing for one-size-fits all buffers, the Fisheries Service has made it impossible for us to review whether the recommendation satisfied the regulation and therefore was the product of reasoned decision-making,”

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Niemeyer wrote. The case is *Dow Agrosciences v. National Marine Fisheries*, 11-CV-2337, U.S. Court of Appeals for the Fourth Circuit (Richmond, Virginia). (*Bloomberg*, 2/21/13).

Pesticide Potpourri

- The presence and subsequent failure of Proposition 37 on California's ballot in November brought the genetically-engineered labeling debate into the national spotlight. In Florida, Rep. Michelle Rehwinkel-Vasilinda and Sen. Maria Lorts Sachs have introduced mandatory labeling bills that will be considered over the next few months. The bills, HB 1233 and S 1728, will require labeling for all foods that contain more than 1 percent GE ingredients. This would include plants that have been altered with alien genetic material to create genetic combinations that do not occur naturally. During the November election, the opposition to California's Prop. 37 outspent the "Yes on 37" campaign 5-to-1. The bill, which started off with a 2-to-1 lead in some polls, ended being defeated 53 percent to 47 percent. (*Broward-Palm Beach New Times*, 3/5/13).
- Bayer CropScience and Syngenta have submitted applications for the approval of a new herbicide-tolerant soybean trait in various countries including the U.S., EU, and Canada. The trait confers tolerance to three herbicide active ingredients: mesotrione, glufosinate, and isoxaflutole

(MGI). This MGI herbicide tolerance trait will be a tool for growers whose yields are affected by waterhemp, Palmer pigweed and lambsquarters. The MGI herbicide tolerance trait will be available in NK brand soybean varieties offered by Syngenta and also in Bayer branded varieties as well as out-licensed to other seed brands once all the necessary regulatory approvals have been obtained. Additionally, each company is developing its own soybean herbicide products and programs that will be utilized with the new soybean varieties. The new trait will broaden the herbicide options available to soybean growers where resistance has occurred within hydroxyphenyl pyruvate dioxygenase (HPPD) inhibitor products. Tim Zurliene, Global Trait Marketing and Licensing Manager, Bayer CropScience states "this new trait and herbicide system will enable growers to build highly effective weed management programs in soybeans while utilizing rotation of multiple and highly effective herbicide modes of action-critical in the ongoing fight against weed resistance." Brett Miller, Technical Product Lead, Syngenta says, "We expect MGI herbicide tolerance to become the foundation for soybean products containing stacked herbicide tolerance traits offering multiple modes of action to control the broadest spectrum of weeds." (*Farm Chemicals International*, 3/4/13).

- Black olive scale beetle has been a problem in Chilean citrus production since arriving with the Spanish conquistadors hundreds of years ago. Dissatisfied with chemical treatment and determined to protect the fruit that earned \$255 million in 2011, Chile is

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turning to fungus as a possible solution. This type of research is “just emerging in the country, and there is a need to have consumable goods that have little or no environmental impact, given the international market demands,” Carmen Jorquera, a researcher from Universidad La Serena said in an email. Chile’s Foundation for Agrarian Innovation (FIA) alongside Universidad de La Serena, Universidade de São Paulo, the Full House Science for Money S. A. and Universidad de Valparaíso announced their plan to develop a mycopesticide in early January. Jorquera works as coordinator for the project, which seeks to use a yet-undiscovered mycopesticide to deter the coffee-bean sized parasite. The FIA will cover \$149 million of the \$182 million initiative. Researchers in Chile believe they’ll find a way to produce a hearty mycopesticide to take on the beetle and stand up to the country’s harsh northern climate. The initial prototype is slated to appear early 2015, according to a government statement. (*Fresh Plaza*, 1/14/13).



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